



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|-----------------------------|------------------------|
| 10/595,905 | 05/18/2006 | Bernard Bourges | 007035.00012 | 8782 |
| 22908 7590 09/26/2008 BANNER & WITCOFF, LTD. TEN SOUTH WACKER DRIVE SUITE 3000 CHICAGO, IL 60606 | | | EXAMINER GARCIA, ERNESTO | |
| | | | ART UNIT 3679 | PAPER NUMBER |
| | | | MAIL DATE 09/26/2008 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/595,905

Applicant(s)

BOURGESS, BERNARD

Examiner

ERNESTO GARCIA

Art Unit

3679

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2007 and 30 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
- Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Drawings

The drawings were received on December 5, 2007. These drawings are accepted. However, the changed drawings introduce new objections.

The drawings are objected to because the plane 2-2 in Figure 2 should be deleted since the plane cannot refer back to Figure 2 itself. It should also be noted that the direction of the plane is missing in Figure 2. Alternatively, if "2-2" is supposed to refer to another figure, then the correct reference figure should be provided as the plane identifier.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "100" shown in Figure 1.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the extension rod

supporting a chisel (claim 28), a convex surface of revolution about the axis of the driving shaft (claim 20, lines 3), and "the end of the driven shaft contacts the end of the driving shaft" (claim 27, lines 8-9) must be shown or the feature canceled from the claim. No new matter should be entered. With regards to the feature of claim 20, note that the end surface of the driving shaft and that of the driven shaft are frustoconical without a curvature to render being convex. With regards to the feature of claim 27, Figure 1 shows the end of the shaft not in contact.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 14, 16-19, 22, 27, and 28 are objected to because of the following informalities:

regarding claims 14, 16-19, 27, and 28, the claims are objected to because they include reference characters, which are not enclosed within parentheses. Reference characters, H1, H2, H0, C, H3, ØG, H4, J1, J2, J4, corresponding to either the heights, diameters, or widths recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m);

regarding claim 14, --ends-- should be inserted after "axial" in lines 11, 14, and 17;

regarding claim 17, --the axial height-- should be inserted after "than" in line 6 and -- ØG-- should be inserted after the second occurrence of "diameter" in line 7;

regarding claim 20, "occupies" in line 3 should be --intersects--, --with each other-- should be inserted after the first occurrence of "contact", and -- of the driven shaft-- should be inserted after the first occurrence of projection in line 6; and,

regarding claim 22, --respectively-- should be inserted before "between" in line 2 and --of the shafts-- should be inserted after "projection" in line 2. Appropriate

correction is required. For purposes of examining the instant invention, the examiner has assumed these corrections have been made.

Claim Rejections - 35 USC § 112

Claims 14-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 14, the recitations "a driving shaft" in line 4, and "a driven shaft" in line 6 make unclear whether these shafts are the same coaxial shafts recited in the preamble of the claims or different shafts as part of the system. Applicant remarks that the amendment clarifies that the shaft are the same shafts. In response, the amendment does not correct the ambiguity since the body of the claim suggests that the system, which comprises, a driving shaft and a driven shaft, joins end of two approximately coaxial shafts thus setting forth four shafts, i.e., two recited as part of the system which join the coaxial shafts as required by lines 1-2. Accordingly, the preamble requires correction as the system includes the driving shaft and the driven shaft according to the body of the claim. Further, the system, which includes the driving shaft and the driven shaft, does not join ends of two approximately coaxial shafts, when the shafts are part of the system.

The recitation "an axial end extension of axial height H1" in line 5 makes unclear from what part is the axial end extension from. The same goes for "the an axial end extension of axial height H2" in line 7.

Further, the recitation "a second annular shoulder with a surface complementary to the shape of the annular groove proximate to the axial extension of the driven shaft" in lines 13-14 is misdescriptive and/or inaccurate since the surface is actually smaller in both the radial and axial direction than the shape of the groove. Based on the drawings, the only surface that is complementary is that of the first annular shoulder 13 to that of the annular groove 11 of the driving shaft 1.

Regarding claim 17, "a complementary shape to the coupling" in line 5 makes unclear what shape that is since the coupling has been defined by different parts having different shapes. If the shape corresponds to be cylindrical, than what's the purpose of reciting a cylindrical wall in lines 6-7.

Regarding claim 20, the recitation "a transverse wall that occupies a convex surface" in lines 2-3 makes unclear to what the transverse wall is transverse to and how does one know when a transverse wall occupies a convex surface. Is the transverse wall inside the convex surface thus rendering two parts, i.e., a transverse wall and the convex surface? Further, the recitation the recitation "a profile such that when the two shafts are put into contact, the area of contact between the projection of the driven shaft

and the projection of the driving shaft is located as close as possible to the axis of the driving shaft" in lines 5-7 makes unclear what shape the profile is. Further, is the profile only present when the two shafts are put into contact?

Regarding claim 21, the recitation "the driven shaft comprises a projection" in line 2 makes unclear whether this is another projection than that recited in claim 20, line 4, or the same projection. Further, the recitation "the curvature of the transverse wall" in line 4 lacks proper antecedent basis. Note that nowhere does the language state that the transverse wall is convex thus inherently providing for curvature. Claim 20 merely states a convex surface but this is not of the transverse wall. Rather, the convex surface is the one that the transverse wall occupies.

Regarding claim 23, the recitation "an annular groove and an axial end extension adjacent one another" in line 2 or in lines 5-6 makes unclear whether this is another annular groove and another axial end extension than that recited in claim 14, line 4-5 or line 7, or respectively the same ones. The recitation "the cylindrical base" in line 3 lacks proper antecedent basis". Further, the recitation "a transverse wall being formed" in lines 4 and 7 make unclear where the transverse wall is being formed. The recitation "the axial end extension" in line 3 and line 6 and "the annular groove" in lines 3-4 and lines 6-7 makes unclear whether that is the one from the driving shaft or the driven shaft.

Regarding claim 28, the metes and bounds of the claim is unclear. In particular, how does the recitation the driving shaft is a rod of a pneumatic jack and the driven shaft is an extension rod supporting a chisel further limiting the mechanical-and-electrical connection system.

Regarding claims 15, 16, 18, 19, 22, and 24-27, the claims depend from claim 14 and therefore are indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 14, 15, 22, 23, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Boyle et al., 2002/0013085.

Regarding claim 14, Boyle et al. disclose, in Figure 1, a mechanical and electrical connection system comprising a driving shaft **11**, a driven shaft **12**, and a generally cylindrical coupling **1**. The driving shaft **11** has an end comprising an annular groove **A1** (see marked-up attachment) and an axial end extension **A2** proximate to the annular groove **A1** and having an axial height. The driven shaft **12**, approximately coaxial with

the driving shaft **11**, has an end comprising an annular groove **A3** and an axial end extension **A4** of axial height proximate to the annular groove of the driven shaft **12**. The coupling includes a first annular shoulder **13b**, a second annular shoulder **13c**, and a cavity **13a**. The first annular shoulder **13b** has a surface having a shape complementary to the shape of the annular groove **A1** of the driving shaft **11** without clearance. The second annular shoulder **13c** has a surface having a shape complementary to the shape of the annular groove **A3** of the driven shaft **12**. A radial clearance **A5** is provided between the second annular shoulder and the annular groove **A3** of the driven shaft **12**. An axial height of the cavity **13a** is strictly greater than the sum of the axial heights of the axial end extensions **A2**, **A4**. The axial end extension **A2** of the driving shaft **11** and the axial end extension **A4** of the driven shaft **12** remain in mechanical and electrical contact due to a conducting means **14**.

Regarding claim 15, the conducting means **14** is a metallic helical spring **14**.

Regarding claim 22, the axial end extensions **A2**, **A4** have a base located respectively between the annular groove and the projection of the shafts.

Regarding claim 23, the axial end extension of the driving shaft **11** has a cylindrical base having a diameter greater than the diameter of the annular groove **A1** of the driving shaft **11**. A transverse wall of the annular groove **A1** of the driving shaft **11** is formed. The axial end extension of the driven shaft **12** has a cylindrical base having

Art Unit: 3679

a diameter greater than the diameter of the annular groove **A3** of the driven shaft **12**. A transverse wall of the annular groove **A3** of the driven shaft **11** is formed. The first and second shoulder **A2**, **A4** define the cavity within the coupling.

Regarding claim 27, the end of the driven shaft contacts the end of the driving shaft (via the spring 14).

Regarding claim 28, the driving shaft **11** is a rod of a pneumatic jack and the driven shaft **12** is an extension rod supporting a chisel **11a** (at the other end).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyle et al., 2002/0013085, in view of Basnett, 4,783,897.

Regarding claim 16, Boyle et al., as discussed, fails to disclose the annular groove A1 of the driving shaft **12** includes two walls perpendicular to the axis of the

driving shaft 12 and separated by a distance of about axial height, and a bottom comprising a cylindrical surface with diameter coaxial with the axis of the driving shaft 12. Further, Boyle et al. fail to disclose the first annular shoulder also provided with two walls perpendicular to the axis of the coupling and the two walls separated by a distance $H_0 - e$, where e is greater than or equal to 0.05 and less than or equal to 0.2mm, and a cylindrical wall having a diameter $C + e'$, where e' is equal to or greater than 0.05 mm and less than or equal to 0.2 mm. Applicant is reminded that changing the shape of the annular groove and that of the shoulder is an obvious modification as taught in Basnett to retain the shafts to the coupling such that the groove and shoulder are square in cross-section rather being rounded as an alternative. With respect to e and e' having a specified range, applicant should note that this is merely an engineering tolerance and one skilled in the art would have suggested to use a tolerance of $\pm .05\text{mm}$ depending on the amount of sliding contact or no contact at all.

Regarding claim 17, Boyle et al., as discussed, discloses the annular groove of the driven shaft 12 having a bottom comprising a cylindrical surface with a diameter coaxial with the axis of the driven shaft. However, Boyle et al. fail to disclose the annular groove of the driven shaft including two walls perpendicular to the axis of the driven shaft and separated by a distance of about axial height, and the second annular shoulder including two walls perpendicular to the axis of the coupling and separated by a distance strictly less than axial height of the groove A3, and a cylindrical wall with a

Art Unit: 3679

diameter strictly greater than the diameter of the annular groove **A3** of the driven shaft

12.

Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyle et al., 2002/0013085.

Regarding claim 18, given that the driven shaft **12** and the coupling **13** slide with respect to each other, one skilled in the art would have made a radial clearance between an outer surface of the axial end extension of the driven shaft **12** and the wall of the cavity **13a** so as to make a slide fit.

Regarding claim 19, Boyle et al., as discussed, teaches a maximum clearance corresponding to the difference of the axial height of the cavity and the sum of the axial height of the axial end extensions (this depends where the cavity is taken); however, Boyle et al. fail to disclose the difference between the axial height of the annular groove **A3** of the driven shaft **12** and the axial height of the second shoulder **13c** corresponds to a maximum clearance strictly greater than the maximum clearance between the ends of the shafts. Applicant is reminded that a change in size is generally recognized as being within the level of ordinary skill in the art. Therefore, it would have been an obvious matter of design choice to change the size of the second shoulder or decrease the size between the ends of the shaft, especially when the ends of the shaft move relative to

each other and such modification would have involved a mere change in the size of the components. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Regarding claim 20, the axial end extension A2 of the driving shaft 11 comprises a projection having an end with a transverse wall (the flat wall that touches the spring) that intersects a conical surface of revolution about the axis of the driving shaft 11. The axial end extension of the driven shaft 12 comprises a projection having an end with a transverse wall with a profile (tapered in this case). However, the conical surface is not considered a convex surface by definition. Applicant is reminded that changing the conical surface into a spherical surface, i.e., convex, is an obvious modification since either shape allows ease of insertion into a cavity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the conical surface into a convex surface as an alternative design for allowing insertion into the cavity of the coupling.

Regarding claim 21, given the modification, the curvature at the mid-point of the convex surface would have been greater than the transverse wall of the projection of the driving shaft since the surface would have been spherical. Note that a frustoconical surface has curvature in the circumferential direction.

Claims 14 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smetters, 5,261,449, in view of Calini, 4,024,688.

Regarding claim 14, Smetters disclose, in Figures 4 and 5, a mechanical and electrical connection system comprising a driving shaft **78**, a driven shaft **74**, and a generally cylindrical coupling **140, 142, 160**. The driving shaft **78** has an end comprising an annular groove **120** and an axial end extension **124** proximate to the annular groove **120** and having an axial height. The driven shaft **74**, approximately coaxial with the driving shaft **78**, has an end comprising an annular groove **128** and an axial end extension **130** of axial height proximate to the annular groove of the driven shaft **74**. The coupling **140, 142, 160** includes a first annular shoulder **170**, a second annular shoulder **176**, and a cavity **172**. The first annular shoulder **170** has a surface having a shape complementary to the shape of the annular groove **120** of the driving shaft **78**. The second annular shoulder **176** has a surface having a shape complementary to the shape of the annular groove **128** of the driven shaft **74**. A radial clearance is provided between the second annular shoulder **176** and the annular groove **128** of the driven shaft **74** (col. 4, line 67 - col. 5, line 2). An axial height of the cavity **172** is strictly greater than the sum of the axial heights of the axial end extensions **124, 130**. However, Smetters fail to disclose the first annular shoulder **170** having a surface having a shape complementary to the shape of the annular groove **120** of the driving shaft **78** without clearance, and the axial end extension **124** of the driving shaft **78** and the axial end extension **130** of the driven shaft **74** remaining in mechanical and electrical contact due to a conducting means. Applicant is reminded that Smetters suggests that the groove 120 and 128 can be adapted to provide a clearance at column

4, line 67 to column 5, line 2. Therefore, one skilled in the art would have provided the clearance in either groove such that the driven shaft 74 can be manipulated relative to the driving shaft 78 for alignment. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the first annular shoulder having a surface having a shape complementary to the shape of the annular groove of the driving shaft 78 without clearance to align only the driven shaft relative to the driving shaft instead of both being manipulated for alignment.

Calini teaches, in Figure 5, an axial end extension **16** of a driving shaft **15** and an axial end extension 16 of the driven shaft **15** remaining in mechanical contact due to a conducting means 41 so that the two axial end extensions remain in contact because of manufacturing tolerances being made. Therefore, as taught by Calini, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a conducting means 41 so that the axial end extension of both the driving shaft and the driven shaft remain in mechanical contact in case manufacturing tolerances are introduced in shafts. Given that the two conducting means is provided between the ends of the shaft, electrical contact will be inherent since current can flow between the shafts.

Regarding claim 24, given the modification, the coupling would have been comprised of two shells **140**, **142**, forming half cylinders comprising the first shoulder and the second shoulder on their respective inner faces. The first shoulder and the

Art Unit: 3679

second shoulder would have faced the annular grooves in the driving shaft and the driven shaft and fixedly held by a cylindrical sleeve **160** slid onto one end of one of the shafts **78, 74**.

Regarding claim 25, the sleeve would have been fixed at one end using a shoulder **208** (see Figure 6) that would have provided a stop and fixed at the other end by attachment means **234a, 234b** securing each shell to the sleeve **204**.

Regarding claim 26, the attachment means **234a, 234b** would have been one or more fasteners selected from the group consisting of a pin **234a, 234b** passing through the sleeve **204**, a retaining ring, a nut, and a needle screw **164**.

Response to Arguments

Applicant's arguments with respect to claims 14-28 have been considered but are moot in view of the new grounds of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. In particular, the deleted limitations "connected to an axial translation device" in claim 14, line 4, and "elastic" in claim 14, line 21, and the added limitation

"approximately coaxial with the driving shaft" in claim 14, line 6, necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernesto Garcia whose telephone number is 571-272-7083. The examiner can normally be reached from 9:30AM-6:00PM. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached at 571-272-7087.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/E. G./

Examiner, Art Unit 3679

September 27, 2008

Attachment: one marked-up page of Boyle et al., US2002/0013085

/Daniel P. Stodola/
Supervisory Patent Examiner, Art Unit 3679

